REMARKS

Claims 1-8 and 20 are currently pending. Claims 9-19 are hereby cancelled without prejudice to being pursued in a timely filed continuation or divisional application. Claims 1, and 4-7 have been amended. The amendment to the Specification corrects what the Applicants contend is a typographical error. No new matter has been introduced by virtue of the amendments made here.

On the merits the Examiner has rejected Claims 1, 4-9 and 20 under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 6,127,438 (Hasegawa et al. - WO 96/27633). The arguments advanced in support of this rejection are discussed in item No. 2 at pages 2-3 of the Official Action, and not herein repeated.

Further, the Examiner has rejected claims 1, 2 and 4-9 under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 6,010,776 (Exsted et al.), for the reasons advanced in items No. 3 at pages 3-4 of the Official Action, and not herein repeated.

Finally, the Examiner has rejected claims 2 and 3 under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 6,127,438 in view of U.S. Patent No. 5,480,745 (Nishiyama et al.) for the reasons set forth in item 5 at pages 4 and 5 of the Official Action, and not herein repeated. Claim 3 stands rejected under 35 U.S.C. §103(a) as obvious over Exsted in view of U.S. Patent No. 5,176,953 (Jacoby et al.) for the reasons discussed in items No. 6 at page 5 of the Official Action, and not herein repeated.

Applicants respectfully traverse all of the outstanding grounds for rejection, to the extent not rendered moot by virtue of the amendments to the currently pending claims. Applicants note that Claim 1 is the sole independent claim on which all other pending claims

depend directly or indirectly, and which stands rejected under 35 U.S.C. §102(b) based on Hasegawa et al. and Exsted et al. Accordingly, if Claim 1 is patentable over the above-identified applied references, then all claims depending therefrom should also be found patentable.

All of the pending claims require the surface of the microporous film to be treated by irradiation with "an ion beam." Hasegawa et al. discloses irradiation by "an electron beam or γ-ray" and Exsted et al. discloses (i) exposure to radiant energy (UV, an electron beam, γ-ray); (ii) exposure to heat; or (iii) use of a metal catalyst. The attached table summarizes the definitions and characteristics of an ion beam, an electron beam, and γ-ray and UV.

In the present invention, pores are formed on a polymer film, and an ion beam is used to irradiate the film either before or after the formation of the pores. For example, prior to stretching, if the ion beam is irradiated on a precursor film under proper conditions, it breaks the polymer chains on the precursor film and forms a physically weak site. This site is broken during stretching and functions as a "seed" for forming a pore. In addition, if ion beams are irradiated after stretching, the pores formed during stretching may be further expanded in size and distribution by the ion beams.

Contrary to the above, it is difficult to form pores on the surface of the polymer film by the electron beam, γ-ray and UV due to the characteristics listed in the attached table. More specifically, in Hasegawa et al., a cross linked structure is formed on a polymer film by the electron beam or γ-ray; and Exsted crosslinks a crosslinkable oil to the polymer film by use of the electronic beam, γ-ray or UV. Neither reference discloses that the electron beam, γ-ray or UV may affect a formation of pores on the polymer film.

In view of the amendments and remarks as presented herein, Applicants respectfully request reconsideration of the pending claims. A Request for Continued Examination is being filed concurrently.

Respectfully submitted,

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Bradley B. Geist
Patent Office Reg. No. 27,551

30 Rockefeller Plaza
New York, NY 10112-4498
(212) 408-2500

Attorney for Applicants

Enclosures

	Definition	Characteristic	Principles of function upon surface treatment on the film
Ion beam	a stream of ion particles having an electrical charge and moving by an accelerated voltage	An ion is a '**particle**' having a weight. Since an ion has '**an electrical charge,**' it moves by an accelerated voltage.	Particles that have a kinetic energy depending on their weights and accelerated voltages ($1/2 * \mathbf{m} * v^2$) collide with a polymer film in a constant direction to form and **uniformly** distribute pores on the film
Electron beam	a stream of electrons moving by an accelerated voltage	Since an electron has an electrical charge, it moves by an accelerated voltage. But, the weight of an electron is so small as to be ignored, relative to that of an ion.	Electron beams are well known as a means for crosslinking a polymer film. But, since an electron is still smaller in weight than an ion, it is difficult to form pores on a polymer film by using electrons.
γ-ray	an electromagnetic wave having a short wavelength (photon in quantum theory, wavelength: 10^{-9}~10^{-10} cm)	γ-ray is a kind of light. It is not a particle and has no electrical charge.	Since γ-ray is not a particle, it is unable to efficiently form pores on the film unlike a particle.
UV	an electromagnetic wave having a shorter wavelength than visible light (wavelength of UV < 380 nm)	UV is a kind of light. It is not a particle and has no electrical charge.	Since UV is not a particle, it is unable to efficiently form pores on the film unlike a particle.